

New data and records of spiders from North-Eastern Iran (Arachnida: Araneae)

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Abstract

This paper presents the results of a faunistic survey of spiders inhabiting agricultural crops in different locations of Razavi Khorasan province in North-Eastern Iran. Fifteen species belonging to 15 genera of 14 families were determined. Ten species are recorded for the fauna of Razavi Khorasan for the first time, including three species namely *Zelotes puritanus* Chamberlin, 1922, *Pardosa azerifalcata* Marusik, Guseinov & Koponen, 2003 and *Heliophanus aeneus* (Hahn, 1832), which are recorded for the first time from Iran.

Keywords: Araneae, fauna, natural enemies, north-eastern Iran.

Introduction

Spiders are one of the most abundant predatory groups in the terrestrial ecosystems. Protection and promotion of these natural enemies in agro-ecosystems depend on the knowledge about their phenology, habitat preference and behaviour. To obtain such information, the first step is to know species composition of spiders inhabiting different field crops.

The world spider fauna is comprised of 44906 described species that are classified into 3935 genera of 114 families (Platnick, 2014). Despite an increase in the studies on Iranian spiders during recent years, there are still many regions of the country that remain insufficiently investigated. Ghavami (2006) summarized the literature and gave a list of 244 species belonging to 33 families. In the following years, many faunistic and taxonomic studies have been conducted by Iranian researchers in different localities in Iran (Ghavami *et al.*, 2007a; Ghavami *et al.*, 2007b; Ghahari & Marusik, 2009; Moradmand & Jäger, 2011; Kashefi *et al.*, 2013; Mirshamsi *et al.*, 2013; Hosseini *et al.*, 2014; Zamani, 2014a; Zamani, 2014b). As a result, the total number of spider species

recorded from Iran has increased to more than 500 species of more than 40 families (Zamani *et al.*, 2014). Reviewing the literature, it became clear that the spider fauna of Iran is not yet completely studied and would benefit from further detailed studies.

Material and Methods

During 2012-2013, a faunistic survey of spiders in different locations of Razavi Khorasan province, Northeast of Iran (Fig. 1) was conducted. The survey was carried out mainly in cereals, alfalfa and sugar beet in an agro-ecosystem of fields often surrounded by sparse hedgerows of trees including apples, apricot, cherry, plum, walnuts and almonds. A few specimens from other ecosystems such as municipal green spaces and parks were also included in the collected material. Various sampling methods such as hand collecting, pitfall trapping, or sweeping were used. Specimens were preserved in 70% ethanol and studied using a Nikon SMZ-1 stereo microscope. Identification of most specimens was made according to Almquist (2006), Levy (1999), Le Peru (2011), Nentwig *et al.* (2014) and Prószyński (2003). World distribution is according to Platnick (2014). Specimens were deposited at the collection of Department of Plant Protection, Ferdowsi University of Mashhad (FUMC) and Jalal Afshar Zoological Museum of University of Tehran (JAZM).

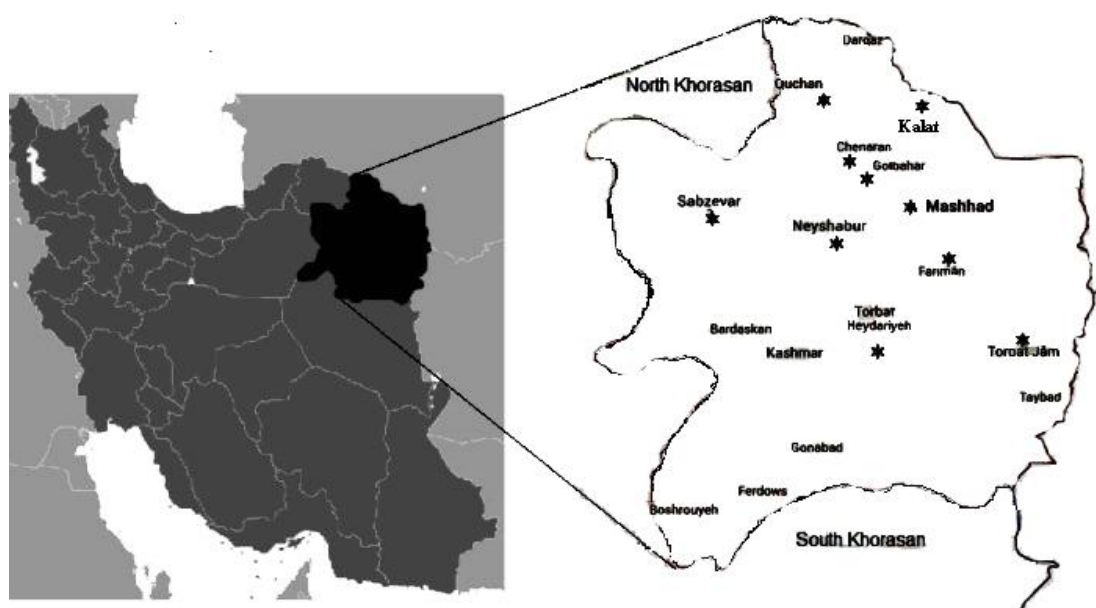


Fig. 1. Map of Iran, with Razavi Khorasan province enlarged (* = collection locality).

Results

Family Araneidae Clerck, 1757

Argiope lobata (Pallas, 1772)

Material: 2♀, Iran: Razavi Khorasan, Sabzevar, 36°13'N, 57°40'E, 20 May 2013, leg. Kaykhosravi.

World distribution: Old World.

Distribution in Iran: Ardebil, Fars, Kerman, Mazandaran, Razavi Khorasan, Southern Khorasan, Tehran, and Zanjan.

Family Eresidae C.L. Koch, in Berendt, 1845

Stegodyphus pacificus Pocock, 1900

Material: 1♀, Iran: Razavi Khorasan, Mashhad, Ferdowsi University Campus, 36°18'N, 59°36'E, 8 June 2013, leg. Kaykhosravi.

World distribution: Jordan, Iran, Pakistan and India.

Distribution in Iran: Kerman, Razavi Khorasan, Southern Khorasan, and Tehran.

Family Eutichuridae Lehitnen, 1967

Cheiracanthium montanum L. Koch, 1877

Material: 6♀, Iran: Razavi Khorasan, Quchan, 37°06'N, 58°30'E, 15 May 2012, leg. Sadeghi; 2♂, Iran: Razavi Khorasan, Mashhad, Kalat-e Naderi, 36°24'N, 59°09'E, 5 September 2013, leg. Sadeghi.

World distribution: Palearctic.

Distribution in Iran: Golestan. First record for Razavi Khorasan.

Family Gnaphosidae Pocock, 1898

Zelotes puritanus Chamberlin, 1922

Material: 1♂, Iran: Razavi Khorasan, Neyshabur, Corn field in Darrud, 36°08'N, 59°07'E, 3 September 2012, leg. Sadeghi.

World distribution: Holarctic.

Distribution in Iran: Razavi Khorasan. This species is recorded here for the first time from Iran.

Differential diagnosis: Females are diagnosed by their longer than wide epigynal plate, which is anteriorly with wide curved margins, and by broad proximal part of copulatory ducts. Males are diagnosed by their retrolateral palp apophysis, which is as long as tibia, and by the curved, retrolateral, end notched median apophysis (Almqvist, 2006).

Family Lycosidae Sundevall, 1833

Pardosa azerifalcata Marusik, Guseinov & Koponen, 2003

Material: 1♀, Iran: Razavi Khorasan, Shandiz, 36°19'N, 59°13'E, 30 April 2013, leg. Sadeghi.

World distribution: Azerbaijan, and Iran (new record).

Distribution in Iran: Razavi Khorasan. This species is recorded here for the first time from Iran.

Differential diagnosis: Females can be diagnosed by longer apical part of the epigynal septum and thinner receptacles. Males are diagnosed by different shape of palea, terminal apophysis, tegular apophysis and embolus (Marusik *et al.*, 2003).

Family Oxyopidae Thorell, 1870

Oxyopes lineatus Latreille, 1806

Material: 3♀, Iran: Razavi Khorasan, Torbat-e-Jam, Bezd village 20 Km south Torbat-e Jam, 35°12'N, 60°26'E, 6 August 2013, leg. Sadeghi; 1♀, Iran: Razavi Khorasan, Mashhad, Golmakan, 36°27'N, 59°09'E, 14 June 2013, leg. Sadeghi.

World distribution: Palearctic.

Distribution in Iran: Eastern or Western Azarbayjan, Golestan, Razavi Khorasan, and Tehran.

Family Philodromidae Thorell, 1870

Tibellus oblongus (Walckenaer, 1802)

Material: 7♀, Iran: Razavi Khorasan, Chenaran, 36°64'N, 59°12'E, 21 May 2013, leg. Sadeghi; 3♀, Iran: Razavi Khorasan, Torghabeh, 36°17'N, 59°20'E, 3 June 2013, leg. Sadeghi.

World distribution: Holarctic.

Distribution in Iran: Ardebil, Tehran, Gilan, Golestan, Mazandaran. First record for Razavi Khorasan.

Family Pisauridae Simon, 1890

Pisaura mirabilis (Clerck, 1757)

Material: 1♂, Iran: Razavi Khorasan, Mashhad, Campus of Ferdowsi University, 36°18'N, 59°36'E, 31 June 2013, leg. Kaykhosravi.

World distribution: Palearctic.

Distribution in Iran: Ardebil, Fars, Gilan, Golestan, Mazandaran, and Semnan. First record for Razavi Khorasan.

Family Salticidae Blackwall, 1841

Heliophanus aeneus (Hahn, 1832)

Material: 4♀, Iran: Razavi Khorasan, Mashhad, 36°18'N, 59°36'E, 2 September 2013, leg. Sadeghi; 1♀, Iran: Razavi Khorasan, Neyshabur, Ghadamgah, 36°26'N, 58°44'E, 3 September 2012, leg. Sadeghi.

World distribution: Palearctic.

Distribution in Iran: Razavi Khorasan. This species is recorded here for the first time from Iran.

Differential diagnosis: Males are diagnosed by long and slightly bent tibial apophysis. Females are diagnosable by their epigynal groove which is approximately one diameter apart from posterior epigynal margin (Žabka, 1997).

Thyene imperialis (Rossi, 1846)

Material: 1♀, Iran: Razavi Khorasan, Mashhad, 36°18'N, 59°36'E, 8 July 2013, leg. Kaykhosravi; 9♀, Iran: Razavi Khorasan, Torbat-e-Heydarieh, 35°16'N, 59°13'E, 19 August 2013, leg. Sadeghi.

World distribution: Old World.

Distribution in Iran: Gilan, Mazandaran, Fars, Ardebil, Tehran, Golestan, Zanjan, Markazi, Khuzestan. First record for Razavi Khorasan.

Family Sparassidae Bertkau, 1872

Olios sericeus (Kroneberg, 1875)

Material: 1♀, Iran: Razavi Khorasan, Mashhad, Imam Taghi village, 35°57'N, 59°26'E, 26 July 2013, leg. Kaykhosravi.

World distribution: Georgia, and Central Asia.

Distribution in Iran: Tehran. First record for Razavi Khorasan.

Family Theridiidae Sundevall, 1833

Phylloneta impressa (L. Koch, 1881)

Material: 5♀, Iran: Razavi Khorasan, Jaghargh, 36°12'N, 59°12'E, 13 September 2013, leg. Kaykhosravi; 2♀, Iran: Razavi Khorasan, Chenaran, 36°64'N, 59°12'E, 30 May 2012, leg. Sadeghi.

World distribution: Holarctic.

Distribution in Iran: Ardebil, Fars, Golestan, and Tehran. First record for Razavi Khorasan.

Family Thomisidae Sundevall, 1833

Xysticus ninnii fusciventris Crome, 1965

Material: 2♂, Iran: Razavi Khorasan, Mashhad, Torogh Forest Park, 37°08'N, 59°30'E, 18 September 2012, leg. Sadeghi.

World distribution: Eastern Europe to Mongolia.

Distribution in Iran: Tehran. First record for Razavi Khorasan.

Family Titanoecidae Lehitnen, 1967

Nurscia albomaculata (Lucas, 1846)

Material: 3♀, Iran: Razavi Khorasan, Mashhad, 36°18'N, 59°36'E, 3 June 2013, leg. Sadeghi; 1♀, Iran: Razavi Khorasan, Quchan, 37°06'N, 59°34'E, 10 October 2013, leg. Sadeghi.

World distribution: Europe, Egypt to Central Asia.

Distribution in Iran: Golestan, Mazandaran, and Razavi Khorasan.

Family Uloboridae Thorell, 1869

Uloborus walckenaerius Latreille, 1806

Material: 5♀, Iran: Razavi Khorasan, Mashhad, 36°18'N, 59°36'E, 25 May 2013, leg. Kaykhosravi.

World distribution: Palearctic.

Distribution in Iran: Golestan, Lorestan, Razavi Khorasan, and Tehran.

Discussion

Feeding on a wide range of insects and other arthropods implies that spiders can act as biological control agents of many pests in agro-ecosystems. However, before any research on their host preference and efficiency is conducted, it is necessary to know the species composition of this diverse group in each specific agro-ecosystem. The present study which was carried out mainly in cereals, alfalfa and sugar beet in an agro-ecosystem of fields often surrounded by sparse hedgerows of fruit and non-fruit trees added 10 new records to the spider fauna of Razavi Khorasan province, of which, three are new for the fauna of Iran. The results presented here are part of a biodiversity survey on arthropods associated with important agricultural crops in north-eastern Iran. Undoubtedly, with more intensive research in different habitats including the non-agricultural ones, more species of spiders would be discovered that are either new to science, or new to the fauna of Iran.

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